Science GE DOK Alignment Chart **LIFE SCIENCE** **Grades 7-8** **GE 30**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
LIFE SCIENCE			
Enduring Knowledge: All living organisms and their component cells have identifiable characteristics that allow for survival.			
DOK 2 **LS1(5-8) SAE + FAF-2** **DOK 2** **LS1(5-8) FAF-4** **DOK 2** **LS1(5-8) SAE + FAF-2** **LS4(5-8) INQ + POC -11**	• **S7-8:30** **(DOK 2)** **Students demonstrate their understanding of Structure and Function-Survival Requirements by…** • Conducting experiments that investigate how different **concentrations** of materials (inside and outside a cell) will cause water to flow into or out of cells. **AND** • Examining cells under a microscope and identifying cell wall and chloroplasts, and by comparing the function of a common cell structure, such as membrane in all cells, with the functio n of a unique structure, such as chloroplasts in plant cells. **AND** • Examining cells under a microscope, identifying the nucleus and explaining the relationship between **genes** (located in the nucleus) and traits.	Science Concepts: a. Cells contain structures that carry out survival functions. b. The nucleus of a cell contains the genes. Every cell contains a complete set of genes for that organism. c. Genes provide the instructions that direct the functions of the cell. d. Plant cells have a cell wall in addition to a cell membrane. The cell wall provides structural support for the cell. The cell membrane regulates the movement of materials into and out of a cell. e. Most plant cells contain chloroplasts where green pigment traps the energy from sunlight and transforms it from light energy into chemical energy. f. Some materials can pass into and out of cells as concentrations move toward equilibrium (**diffusion**).	

Science GE DOK Alignment Chart **LIFE SCIENCE** **Grades 7-8** **GE 31-33**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: All living organisms and their component cells have identifiable characteristics that allow for survival.			
DOK 1 **LS4(5-8) INQ + POC -11** **DOK 2** **LS4(5-8) POC-12**	• **S7-8:31** **(DOK 2)** **Students demonstrate their understanding of Reproduction by …** • Explaining that cells come only from other living cells and that genes duplicate in the process of **cell division** producing an identical copy of the original cell. **AND** • Describing the relationship between human growth and **cell division**.	Science Concepts: a. Cells only come from other cells. b. Cells repeatedly divide to make more cells for growth and repair. c. During cell reproduction, genes duplicate so that each new cell will have an identical set of genes. d. When cells divide, they are reproducing asexually. e. As a result of asexual reproduction, new cells (organisms) are identical to the parent cell. f. Some complete organisms can reproduce asexually (e.g., budding).	**(DOK 2)** • Compare and contrast sexual and asexual reproduction.
S7-8:32 Not assessed at this grade level			
DOK 1-2 **LS2(5-8) SAE -6**	**S7-8:33** **(DOK 2)** **Students demonstrate their understanding of how Energy Flow Within Cells Supports an Organism's Survival by…** • Explaining that energy from the sun is transferred and utilized in plant and animal cells through chemical changes and then transferred into other forms such as heat (e.g., using a word equation rather than a chemical equation).	Science Concepts: a. Plant cells take in carbon dioxide and water and use the energy from sunlight to chemically change them to food (sugar) and oxygen. b. All cells chemically change sugar (food) and oxygen into energy required to survive. c. Energy is used by all cells to carry out functions for survival and some energy is transferred to the environment as heat.	

Science GE DOK Alignment Chart **LIFE SCIENCE** **Grades 7-8** **GE 34-36**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: Energy enters an ecosystem in the form of sunlight and flows through the system to each cell. Matter interacts, changes and recycles in an ecosystem. Populations of organisms survive by maintaining interdependent relationships with one another and by utilizing biotic and abiotic resources from the environment.			
DOK 2 LS2(5-8) SAE -6 LS2(5-8) SAE -7	• **S7-8:34** **(DOK 2)** **Students demonstrate their understanding of Energy Flow in an Ecosystem by…** Describing how light is transformed into chemical energy by producers and how this chemical energy is used by all organisms to sustain life (e.g., using a word equation rather than a chemical equation).	Science Concept: a. Plants transform energy from the sun into stored chemical energy by changing carbon dioxide and water into sugar (food). Plants use or store the sugar they produce to satisfy their energy needs. b. All organisms release the energy stored in sugar (food) through a chemical change that requires oxygen and produces carbon dioxide and water in addition to energy. Some consumers eat plants directly (**herbivores**). Some consumers eat other animals **(carnivores**) and use the energy from the plant's sugar food that was stored in the animal's cells. Some consumers eat both plant and animal material **(omnivore**).	
S7-8:35 Not assessed at this grade level			
DOK 3 LS1(5-8) INQ + SAE-1 LS2(5-8) INQ + SAE -5 LS2(5-8) SAE -6 LS2(5-8) SAE -7	**S7-8:36** **(DOK 3)** **Students demonstrate their understanding of Equilibrium in an Ecosystem by…** Identifying an **abiotic** or **biotic** change in a local ecosystem, predicting the short and long-term effects of this change and drawing conclusions about the stability of the system (e.g., local river study).	Science Concept: a. Given adequate biotic and abiotic resources, an ecosystem will maintain equilibrium and continue indefinitely. b. Factors that affect biotic or abiotic resources such as disease, predation, climate, and pollution can change the dynamics of an ecosystem and the interdependent relationships among populations of organisms until a new equilibrium is reached (e.g., Members of a species that occur together at a given time are referred to as a population).	

Science GE DOK Alignment Chart **LIFE SCIENCE** **Grades 7-8** **GE 37-38**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: Energy enters an ecosystem in the form of sunlight and flows through the system to each cell. Matter interacts, changes and recycles in an ecosystem. Populations of organisms survive by maintaining interdependent relationships with one another and by utilizing biotic and abiotic resources from the environment.			
DOK 2 **LS2(5-8) SAE -7**	**S7-8:37** **(DOK 2)** **Students demonstrate their understanding of Recycling in an Ecosystem by…** Explaining how products of decomposition are utilized by the ecosystem to sustain life while conserving mass (e.g., worm farm, compost).	Science Concept: a. When decomposers break down the matter contained in plants and animals, the molecules of matter can be recycled through the ecosystem and used by plants to produce food or as building material for all organisms. b. As matter is transferred from one organism to another in an ecosystem, the total amount (mass) remains the same.	
HUMAN BODY			
Enduring Knowledge: All living things exhibit patterns of similarity in their structures, behaviors and biochemistry			
DOK 2 **LS3(5-8)INQ + FAF + POC-8** **DOK 1** **LS3(5-8)INQ + FAF + POC-8**	**S7-8:38** **(DOK 2)** **Students demonstrate their understanding of Classification of Organisms by…** • Comparing and sorting organisms with similar characteristics into groups based on internal and external structures recognized by scientists. **AND** • Recognizing that individuals that can reproduce with one another and produce fertile offspring are classified as a **species**.	Science Concepts: a. Scientists organize the vast diversity of organisms by describing similarities and differences among living things. Details of internal and external structures of organisms are more important for scientific classifi cation than behavior and general appearance. b. Individuals that can reproduce with one another and produce fertile offspring are classified as a species.	

Science GE DOK Alignment Chart **LIFE SCIENCE Grades 7-8 GE 39**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: All Living Things exhibit patterns of similarity in their structures, behaviors and biochemistry			
DOK 1 **LS3-9** **LS4(5-8) INQ + POC -11** **DOK 2** **LS1(5-8)POC-3**	**S7-8:39** **(DOK 2)** **Students demonstrate their understanding of Evolution/Natural Selection by…** • Identifying that traits occur randomly. **AND** • Explaining that advantageous traits of organisms are passed on through reproduction. **AND** • Comparing **sexual** with **asexual reproduction.**	Science Concepts: a. Differences in physical characteristics (traits) occur randomly (by chance) in a population or species. b. As environments change, organisms that possess advantageous traits (those that enable them to survive) pass those traits to offspring through reproduction.	**(DOK 2)** • Compare and contrast sexual and asexual reproduction.